



## CASE STUDY

# Marking Navigation Hazards at Grand River Dam

*Grand Lake, Oklahoma, USA*



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## Project Overview



### Application

Marking Navigation Hazards



### Product

SL-B1750 Buoys with Synthetic Mooring Solutions and SL-C310 (3-5NM+) Solar Marine Lantern



### Location

Grand Lake, Oklahoma, USA



### Date

September 2017



Significant amounts of debris in the water damaged many of the aged lighthouses or completely swept them away. The GRDA required lighthouse alternatives that could withstand the rigors of upstream debris and currents to ensure the safety of all Grand Lake users.

### Application

Grand River Dam Authority, Oklahoma's state-owned electric utility company, generates, transmits and sells electricity to their customers across four states. To accomplish that, Grand River Dam Authority (GRDA) manages two lakes and operates three hydroelectric facilities along the Grand River, where they are responsible for recreational development and safety for all stakeholders. Part of that responsibility includes the safety of mariners who use the lakes.

Grand Lake, the larger of the two managed lakes, is situated in Northeast Oklahoma. It has miles of shoreline throughout its 66 mile length and is a tributary for three larger rivers. Grand Lake is diverse, suitable for small kayaks to 100 feet vessels.

### The Challenge

The aids to navigation used by GRDA to keep Grand Lake boaters safe were small, metal and fiberglass lighthouses constructed in the 1990's. Positioned at critical locations around Grand Lake, the lighthouses were at the end of their useful life due to erratic water conditions on Grand Lake.

Water conditions vary widely in Grand Lake. Ice melting upriver effects the water depth and current as does an influx of rain. The primary concern was what was carried in the currents. Significant amounts of debris in the water damaged many of the aged lighthouses or completely swept them away. The GRDA required lighthouse alternatives that could withstand the rigors of upstream debris and currents to ensure the safety of all Grand Lake users.



### The Solution

The GRDA chose Sealite's SL-B1750 Buoys anchored by the Synthetic Mooring System to solve the navigation safety challenges for Grand Lake boaters. The buoys were each fitted with SL-C310 Solar Marine Lanterns for outstanding visibility at night and in foul weather. The combined aids to navigation were a perfect fit for the Grand Lake installation.

The SL-B1750 Buoys are made from strong, 16mm thick polyethylene to withstand the battering debris brought downstream in the currents. Stainless steel mooring eyes provide robust mooring attachment points which combats load stresses of strong currents and debris. The synthetic mooring solution absorbed the detrimental shock loads (from sinker to buoy) from the extreme wave and wind conditions. Sealite's SL-C310 solar marine lanterns are a highly visible, reliable lantern making each buoy a clear navigation aid when viewed during the day, night or in foul weather.

### Outcome

GRDA is impressed with the performance of Sealite's combined SL-B1750 Buoys, SL-C310 Marine Lanterns and Synthetic Mooring Solutions. Each aid to navigation is proving it can withstand widely fluctuating water depths and currents, the devastating effects of floating ice and debris, and deliver hazard warnings to help ensure the safety of mariners on Grand Lake.



“Grand Lake experiences significant wind and waves, with ever-changing depths and currents. We also have a variety of vessels of all sizes operating on Grand Lake. The requirement for navigation safety on this lake cannot be underestimated. Sealite buoys are another excellent tool that helps ensure safer navigation on Grand Lake.”

- Director of Navigation Management for GRDA, Ed Ferguson



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